

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:	PCT		
ASTRAZENECA Global Intellectual Property 151 85 Södertälje Sverige			
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Applicant's or agent's file reference 101377-1 WO		FOR FURTHER ACTION <i>See paragraph 2 below</i>	
International application No. PCT/SE 2005/000156		International filing date (day/month/year) 07.02.2005	
Priority date (day/month/year) 10.02.2004			
International Patent Classification (IPC) or both national classification and IPC C07D215/54, 401/12, 413/12, 417/12, A61K31/47, A61P37/00, 11/06			
Applicant AstraZeneca AB et al			

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further opinions, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Fernando Farieta/Els Telephone No. +46 8 782 25 00
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/SE 2005/000156

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 This opinion has been established on the basis of a translation from the original language into the following language, _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
 a sequence listing
 table(s) related to the sequence listing
 - b. format of material
 in written format
 in computer readable form
 - c. time of filing/furnishing
 contained in the international application as filed.
 filed together with the international application in computer readable form.
 furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
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Box No. II Priority

1. The following document has not yet been furnished:
 copy of the earlier application whose priority has been claimed (Rules 43bis.1 and 66.7(a)).
 translation of the earlier application whose priority has been claimed (Rules 43bis.1 and 66.7(b)).
Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.
2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

The priority is considered valid.

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The question whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- the entire international application
 claims Nos. 21-22

because:

- the said international application, or the said claims Nos. 21-22
relate to the following subject matter which does not require an international preliminary examination (*specify*):

See PCT Rule 67.1.(iv).: Methods for treatment of the human or animal body by surgery or therapy, as well as diagnostic methods.

- the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1 - 3
are so unclear that no meaningful opinion could be formed (*specify*):

Present claims 1-3 relate to an extremely large number of possible compounds. In fact, the claim contains so many possible permutations and provisos that a lack of clarity and conciseness within the meaning of Article 6 PCT arise to such an extent as to render a meaningful examination of the claims impossible.

.../

- The claims, or said claims Nos. 1 - 3 are so inadequately supported
by the description that no meaningful opinion could be formed.
- no international search report has been established for said claims Nos.
- the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
the written form has not been furnished
 does not comply with the standard
the computer readable form has not been furnished
 does not comply with the standard
- the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in the Annex C-bis of the Administrative Instructions.
- See Supplemental Box for further details.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **BOX III**

Consequently, the search has been carried out for those parts of the application which appear to be clear and concise, namely those compounds recited in the examples 1-274

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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																										
<p>1. Statement</p> <table> <tr> <td>Novelty (N)</td> <td>Claims</td> <td><u>14, 23 and part of 15-20</u></td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td><u>4-13 and part of 15-20</u></td> <td>NO</td> </tr> <tr> <td>Inventive step (IS)</td> <td>Claims</td> <td></td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td><u>4-20 and 23</u></td> <td>NO</td> </tr> <tr> <td>Industrial applicability (IA)</td> <td>Claims</td> <td><u>4-20 and 23</u></td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td><u>21-22</u></td> <td>NO</td> </tr> </table>				Novelty (N)	Claims	<u>14, 23 and part of 15-20</u>	YES		Claims	<u>4-13 and part of 15-20</u>	NO	Inventive step (IS)	Claims		YES		Claims	<u>4-20 and 23</u>	NO	Industrial applicability (IA)	Claims	<u>4-20 and 23</u>	YES		Claims	<u>21-22</u>	NO
Novelty (N)	Claims	<u>14, 23 and part of 15-20</u>	YES																								
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Inventive step (IS)	Claims		YES																								
	Claims	<u>4-20 and 23</u>	NO																								
Industrial applicability (IA)	Claims	<u>4-20 and 23</u>	YES																								
	Claims	<u>21-22</u>	NO																								
<p>2. Citations and explanations:</p> <p>Reference is made to the following documents:</p> <p>D1: EP 0 480 052 A1</p> <p>D2: WO 02/092571 A1</p> <p>D3: EP 0 259 174 A1</p> <p>D4: EP 0 346 208 A1</p> <p>The claimed invention relates to the need of quinoline-carbaxamides as JAK3 kinase modulators according to the description and claims for the treatment of asthma, cancer etc. The claimed invention solves the problem by the use of novel quinoline-carbaxamide derivates of formula I.</p> <p>Novelty (N)</p> <p>Document D1 refers to quinoline derivates as antiulcer drug (See formula I, when Ra=H, Rx=R4, X=CO and NH2=NR2R3). Document D2 comprises quinoline-carbaxamides as JAK3 kinase modulators (See formula I, when X=CO and NRaRx=X(CR2)nAr). Document D3 presents derivatives of 4-aminoquinolines for the inhibition of gastric acid secretion (See formula I, when X=CO, R1=NH2, Ra=H and Rx=R2). Document D4 relates to amino-4-quinolines as pharmaceutical compounds (See formula I, when Ra=R4, Rx=CHR3(CH2)n, X=CO and Z=NR8R9).</p> <p>.../</p>																											

**WRITTEN OPINION OF THE
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: **BOX V**

The compounds according to claims 4-13 and part of 15-20, are considered to be within the scope of protection of documents D1-D4. Thus, the invention defined in claims 4-13 and part of 15-20 is not new and consequently lacks novelty.

Inventive step

The subject-matter of claims 14, 23 and part of 15-20 consists in the selection of quinolines from the range of the general formulas described in documents D1-D4. Such a selection can only be regarded as inventive, if the quinoline of the claimed invention presents unexpected effects or properties in relation to the rest of the range. However, no such effects or properties are indicated in the application. Hence, no inventive step is present in the subject-matter of claims 4-20 and 23.